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Client/Matter: 042860-0307533

REMARKS

Applicants respectfully request reconsideration and allowance in view of the following remarks. Claims 1-55 remain pending in the Application. In the Office Action, Claims 1-55 stand rejected under 35 USC 103(a) as being unpatentable over an Application by Chang, USPTO Publication No. 2002/0171895 ("Chang") in view of U.S. Patent No. 5,600,632 to Schulman ("Schulman").

Examiner's Response to Prior Arguments

In the Office Action, the Examiner states that Applicants' arguments with respect to claims 1-55 have been considered but are moot in view of new grounds of rejection. However, in the latest Office Action, the grounds for rejections include an identical restatement of the grounds set forth in rejecting claims 1-52 in the Office Action of May 17, 2004 that cited only to Chang. The Examiner's position is clearly inconsistent. If Applicants' arguments are moot, then the Examiner could resolve every disputed Chang element in Applicants' favor without prejudicing the claim rejections. Even a cursory review of the rejections reveals that, if such resolution were made, the Examiner cannot sustain the rejections of the claims.

Therefore, Applicants respectfully submit that the Examiner cannot properly dismiss as moot the previously presented arguments while simultaneously maintaining substantially identical claim rejections. Applicants therefore respectfully request withdrawal of all rejections of the claims based on Chang or, alternatively, withdrawal of the latest Office Action and prompt, proper consideration of the previously presented arguments. For the convenience of the Examiner and, in order to further prosecution, Applicants prior arguments are reproduced and reasserted below, with the addition of certain clarifications and preemptive response to the newly cited Schulman reference.

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Rejections of the Claims

Chang is directed to the provision of automatic ranging in a passive optical network (Chang Abstract). Chang does not teach, suggest or otherwise render obvious the methods and systems associated with performance monitoring (“PM”) as claimed in the present Application. For example, claim 1 requires setting a PM initialization time at the ONT, maintaining a base PM time at the ONT, zeroing an interval end time counter at the ONT and collecting first PM data in one of a plurality of PM bins for a PM time interval. Chang never mentions an ONT and does not teach, disclose, suggest or otherwise render obvious any of the elements recited in claim 1.

Schulman does not cure the deficiencies in Chang. Schulman is directed to aggregating data from a plurality of Network Analyzers (Schulman Abstract). Schulman never discusses, discloses or otherwise suggests the use of an ONT as a network analyzer. Consequently, Schulman cannot reasonably be said to teach or suggest any claim element related to an ONT.

Applicants respectfully submit that the combination of Chang and Schulman cannot reasonably be said to anticipate setting an initialization time at an ONT, zeroing an interval end time counter at the ONT or collecting first PM data in one of a plurality of PM bins for a PM time interval for at least the reason that neither reference teaches, discloses or suggests the use of an ONT.

The Chang Reference

Independent claims 1, 24 and 47 require the collection of a first set of PM data in one of the plurality of PM bins for a PM time interval. In the Office Action, the Examiner notes that Chang does not teach “the aggregating of performance data as bins of information.” Nevertheless, the Office Action suggests that the tabulation of round trip time during ranging renders the claims of the present Application obvious (*see* OA, page 3). Applicants disagree. In Chang, ranging is performed to accommodate the insertion or removal of optical network units into or from the PON without seriously interrupting the operation thereof (Chang at col. 2, lines 44-49 [0010] (“Using the automatic...”)). Thus, Chang’s measurements of round trip times are of value only immediately after a change in network configuration caused by insertion or deletion of an optical network unit. There would have been no reason or motivation for Chang to collect data in bins, particularly after network configuration became stable, because each

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instance of data collected would logically have been identical to all other instances of data collected subsequent to a network configuration change. Without such motivation and absent disclosure of bins in Chang, it cannot be said that Chang would have rendered obvious the collection of performance monitor data in one of a plurality of performance monitor bins for a performance monitor time interval as required by independent claims 1, 24 and 47. The utility of bins in a ranging system or method is further discussed below in relation to Schulman.

Furthermore, the claims of the present Application require a performance monitoring (PM) time interval. Chang does not teach performance monitoring or a PM time interval. In the Office Action, the Examiner suggests that a ranging time stamp in a 4 byte field renders the recited PM time interval obvious. Applicants disagree and submit that one skilled in the art would not have considered the ranging time stamp suitable for use as a PM interval time. Chang's ranging time stamp is used to record or note an empirical calculation of a round trip time on an optical network during ranging and is not used in connection with any time interval (Chang at col. 10, lines 32-41 [0077]). Further, it is improbable that the 4 bytes of Chang's ranging time stamp would be capable of measuring a 15 minute round trip time on an optical network (*cf.*, e.g. claim 8, present Application) because a 4 byte time stamp capable of recording a 15 minute period could measure no smaller a period than approximately 200 milliseconds. It will be appreciated that round-trip times in optical networks are typically measured in bit periods. In the example of an optical network operating at 155.520 Mbit/s, bit period is approximately 6.4 nanoseconds which is 6 orders of magnitude smaller than periods that could be measured by a 4 byte counter capable of measuring a 15 minute round trip time. Therefore, for at least these reasons, it would not have been obvious to one of ordinary skill in the art to use Chang's 4 byte ranging time stamp as a PM interval timer.

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The Schulman Reference

Schulman does not cure the deficiencies of Chang. The Examiner proposes that one of ordinary skill in the art would have been motivated to combine Schulman with Chang to obtain the presumed benefit of identifying the source of particularly long latencies so that performance improvement investigations can be undertaken. Applicants disagree and respectfully submit that such motivation can only be divined with improper use of hindsight. Nonetheless, such combination would not provide improvement in the Chang ranging system or method.

Chang discusses performance improvement only in the Description of the Related Art and nothing in Change requires, implies or suggests use of performance improvement investigations. Chang merely states that there is a “general need in the art for a PON that allows automatic ranging and the smooth addition or removal of an ONU without serious interruption in the operation of the PON” (Chang at paragraph [0007]). Chang’s discussion of performance is limited to reconfiguration of passive optical networks and Chang claims are directed to ranging subsequent to such network reconfiguration (Chang at paragraphs [0005-0007]). Chang does not teach or suggest performance monitoring before, during or after ranging.

Furthermore, no benefit could have been envisioned by adding arbitrarily configured bins to Chang for collecting trip times in a ranging system. Figure 12 of Chang discloses a tabulation of round-trip times and one-way trip times calculated for each ONU present in the ranged optical network in a manner that facilitates comprehension of network configuration (*see* Chang at Fig. 12 and paragraphs [0040] and [0091]; latest Office Action at page 3). The use of bins for aggregating round trip and one-way trip times into assigned time ranges as in Schulman would commingle results from different ONUs and obscure the relative locations of near neighbors in an optical network thereby defeating the stated object of the Chang application. Therefore, no motivation could have existed for one of ordinary skill in the art to combine Chang and Schulman.

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CONCLUSION

For at least the foregoing reasons, Applicants respectfully submit that the rejections of claims 1-55 be withdrawn and further submit that the present Application is currently in condition for allowance. Early, favorable action on the merits is solicited. The Examiner is invited to telephone the undersigned if it is believed that a discussion will expedite prosecution of this Application.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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